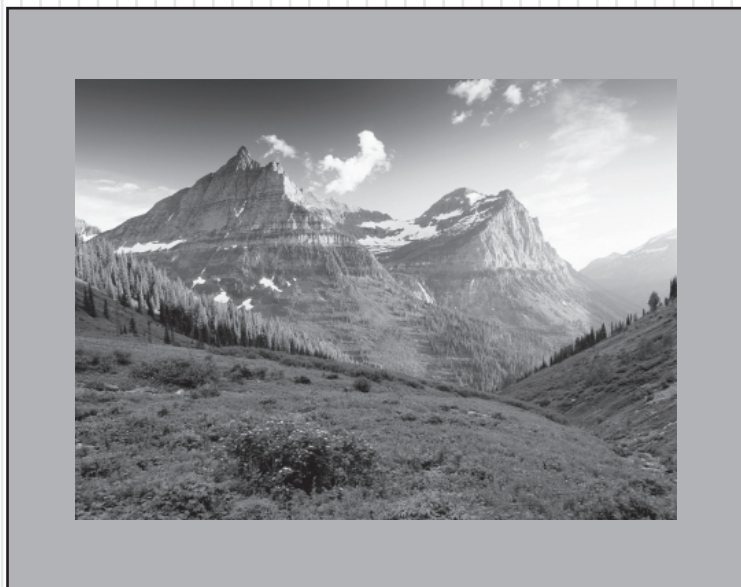


Montana
Comprehensive Assessment
System (MontCAS, Phase 2)
Criterion-Referenced Test (CRT)

COMMON CONSTRUCTED-RESPONSE ITEM RELEASE
MATHEMATICS, GRADE 5

2006



OFFICE OF PUBLIC INSTRUCTION

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Mathematics

Session 1 (Calculator)

You may use a calculator during this session.

25. The fifth-grade students voted on where to go on their class trip. The chart below shows the results of the vote.

Fifth-Grade Class Trip	
Place	Number of Votes
Aquarium	24
Planetarium	16
Science museum	12
Zoo	32

- a. Use the information in the chart to make a bar graph on the grid in the Answer Box on the answer sheet to show the number of students who voted for each place. You may use only the grid given; you may not add any extra lines to the grid. Be sure to title and label your graph.
- b. Write one comparison question that can be answered using the information from your graph in the Answer Box on the answer sheet.

Scoring Guide

Score	Description
4	4 points
3	3 points
2	2 points
1	1 points OR Minimal understanding of representing and analyzing data
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

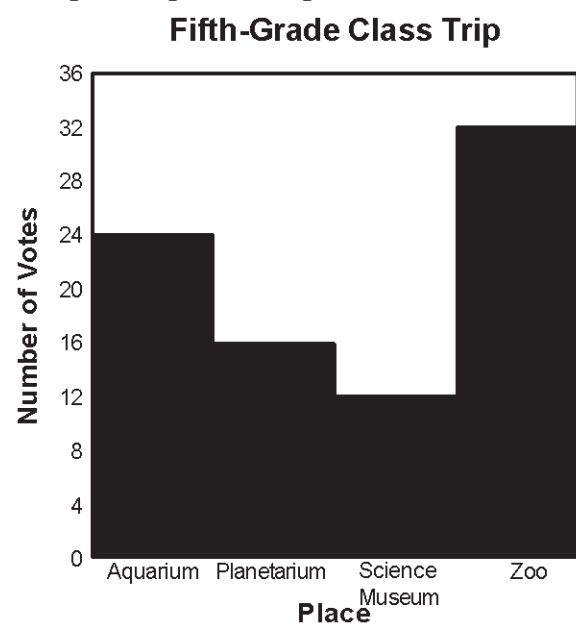
Scoring Notes

- Part a: 3 points for a complete and correct graph – scale is correct, all 4 bars correct, appropriate title and labels
OR
2 points for a mostly correct graph – at most 2 minor errors (missing title or label, incorrect bar, minor scale error, or missing scale with a key)
OR
1 point for a graph with 3 minor errors
or
for correct title and labels and data for 3 of 4 categories correctly represented
- Part b: 1 point for correct comparison question based on graph

Notes

- Not using given grid or adding extra lines to given grid should be considered minor errors
- If the graph is not a bar graph, maximum number of points in part a is 1 point (must meet the criteria listed to get the 1 point)

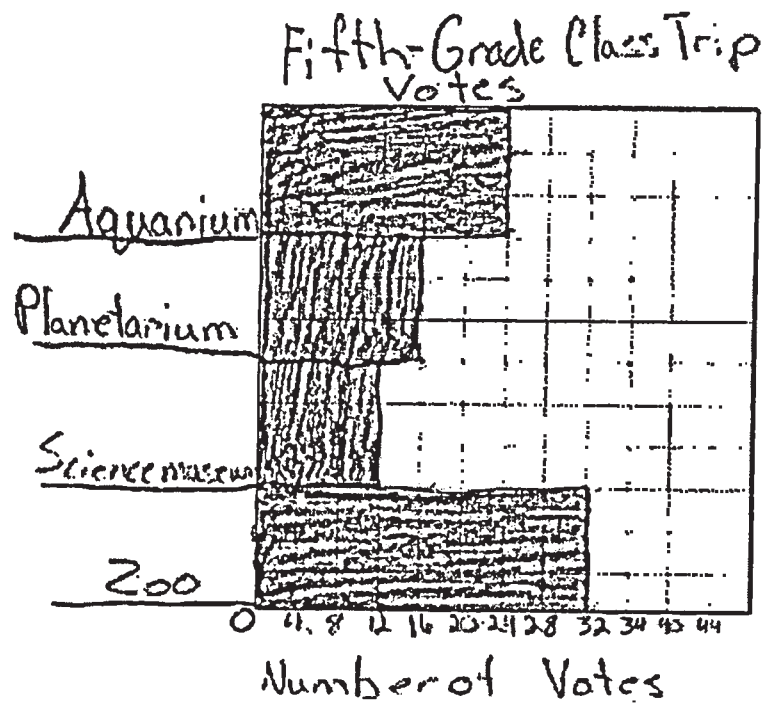
Sample Response for part a:



Score Point 4

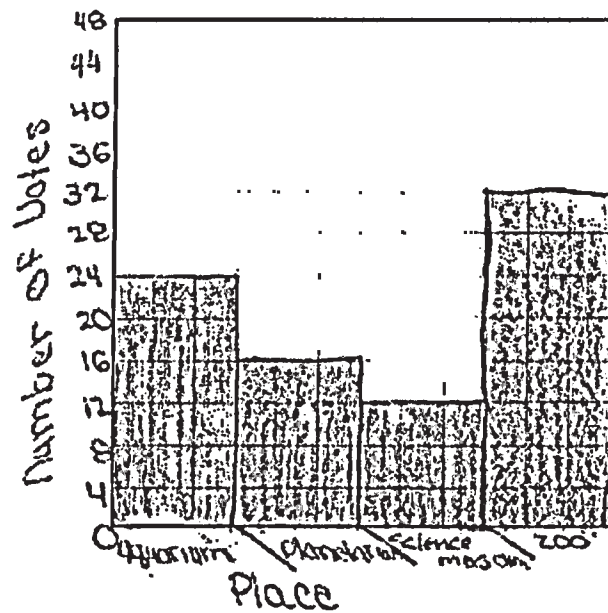
Sample 1

How many more kids voted for the Zoo rather than the Science museum?



How many more
votes did the Zoo
get than the
science museum?

Fifth-Grade Class Trip



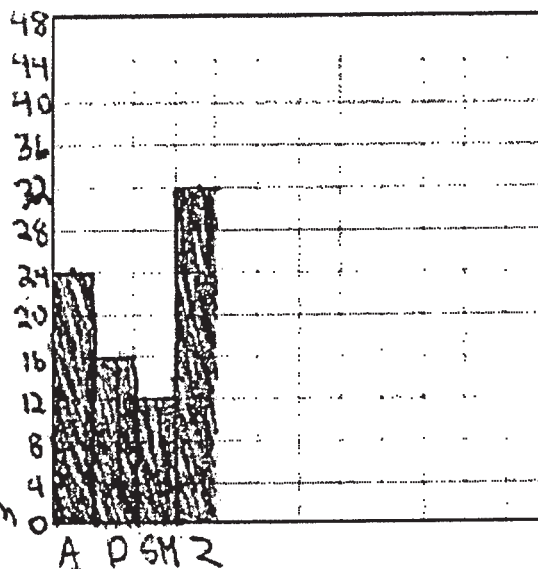
Score Point 3

Sample 1

Q: How many more people voted for the zoo than the science museum?

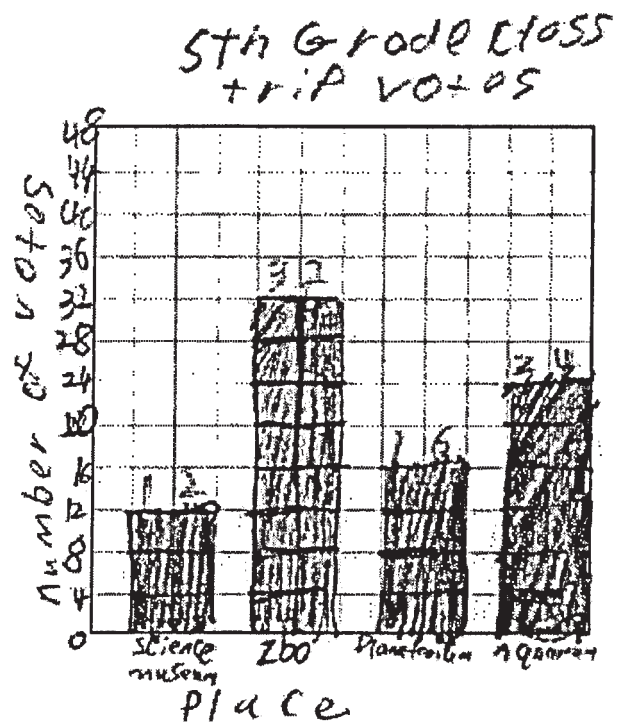
A: 20 people

Key
A = Aquarium
P = Planetarium
SM = Science Museum
Z = Zoo



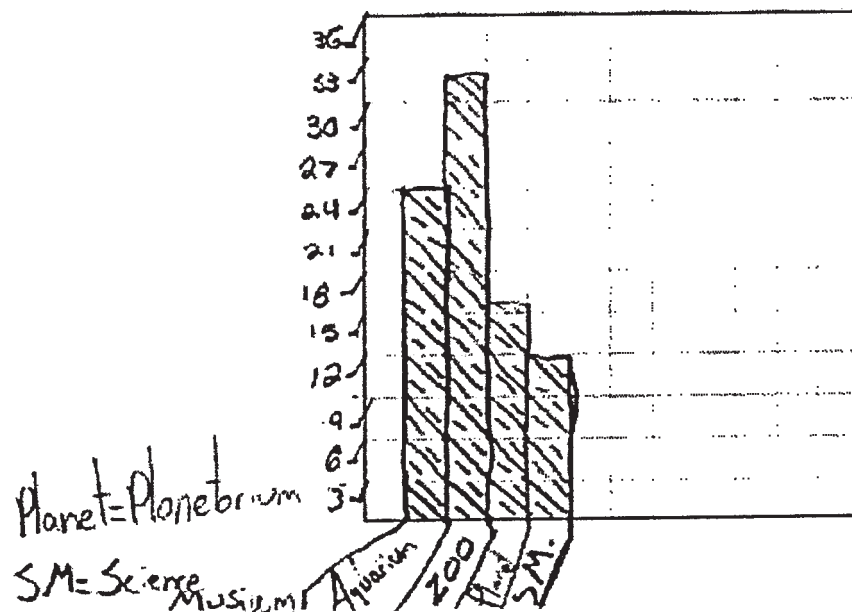
Score Point 3

Sample 2



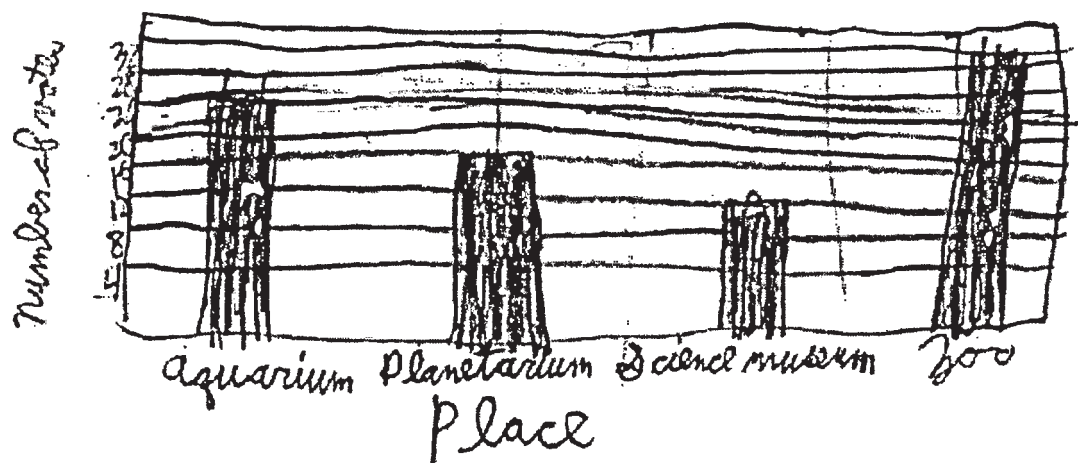
Score Point 2

Sample 1



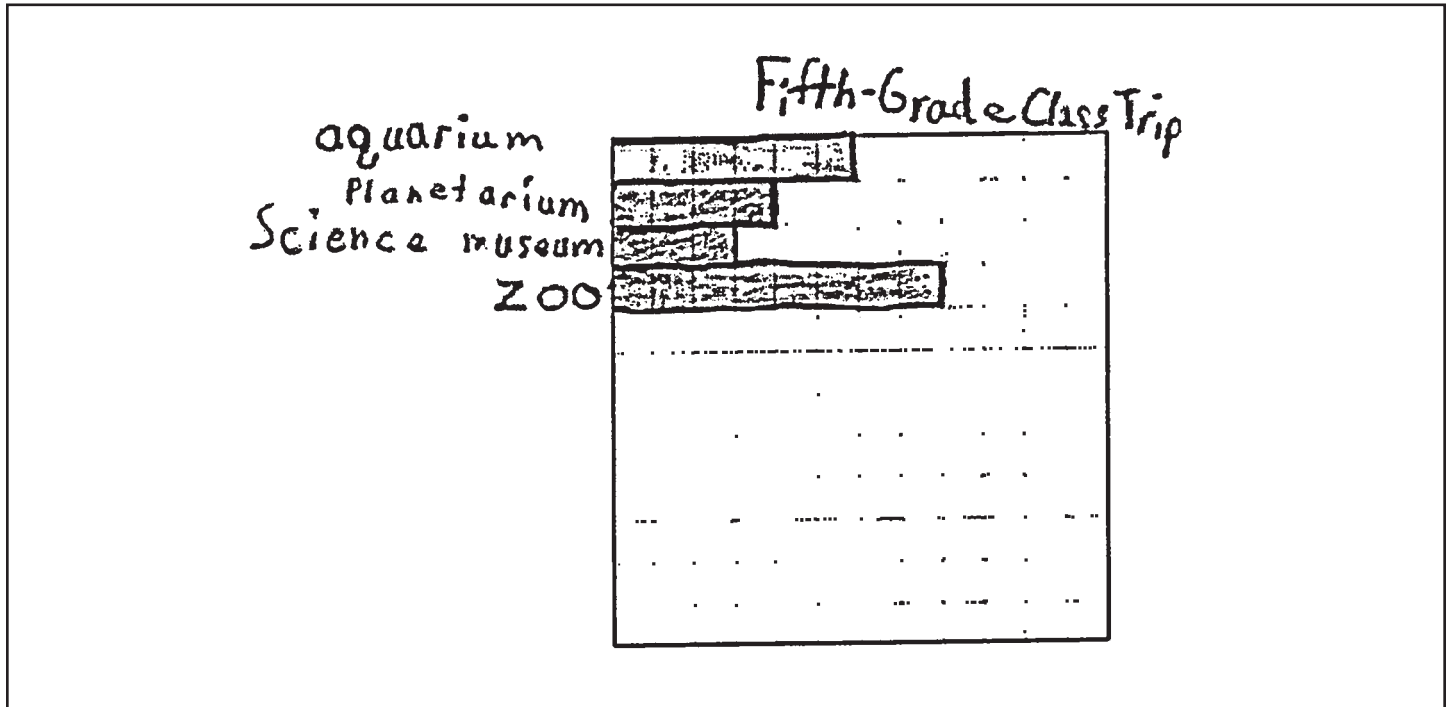
Score Point 2

Sample 2



Score Point 1

Sample 1

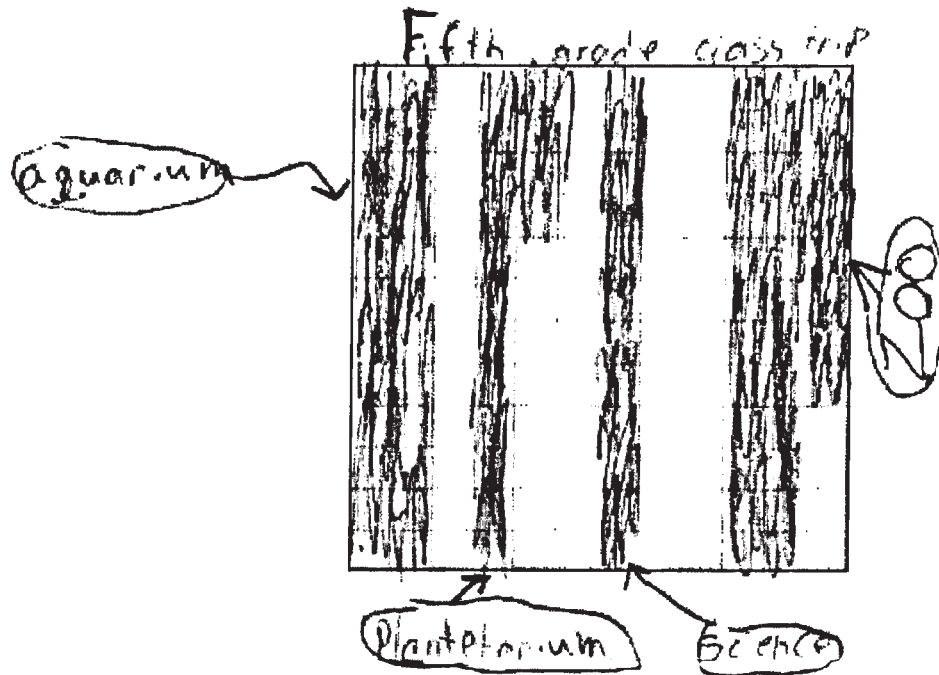


Score Point 1

Sample 2

how many more people wanted to go to
the zoo than the planetarium?

there are 12 squares in a row.



Score Point 0

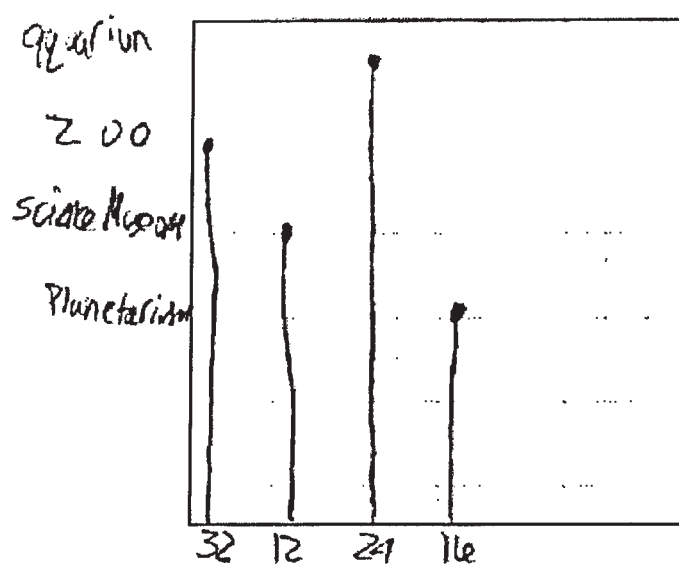
Sample 1

Aquarium	24
Planetarium	16
Science	12
200	32

$$\begin{array}{r} 24 \\ 16 \\ 12 \\ + 32 \\ \hline 84 \end{array}$$

Score Point 0

Sample 2



Mathematics

Session 3 (No Calculator)

You may NOT use a calculator during this session.

68. Ethan gets paid \$4.00 per hour for doing chores. He is saving to buy a pair of skates that costs \$87.60.
- How many whole hours will Ethan have to work in order to have enough money to pay for the skates? Show or explain how you found your answer in the Answer Box on the answer sheet.
 - After Ethan had worked $7\frac{1}{2}$ hours, his pay went up to \$4.50 per hour. How many hours will he have to work now in order to have enough money to pay for the skates? Show or explain how you found your answer in the Answer Box on the answer sheet.

Scoring Guide

Score	Description
4	4 points
3	3 points
2	2 points
1	1 point OR Minimal understanding of computing with decimals and/or fractions in given problem situation
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Scoring Notes

Part a: 2 points	for correct answer [22 (hours)] with work shown or explanation indicating correct strategy OR
1 point	for correct answer or for correct strategy or for correct division of $87.60 \div 4$ with error in interpretation of result (e.g., truncates or does not round to nearest whole hour)
Part b: 2 points	for correct answer [20.3 or 21 (hours) or 12.8 or 13 (hours)] with work shown or explanation indicating correct strategy OR
1 point	for correct answer or correct strategy with minor error(s) in arithmetic and/or interpretation of problem (e.g., rounds down to 20 hours) – the strategy must include the subtraction step to receive the point

Sample Response

Part a: $87.60 \div 4.00 = 21.9$ hours; must go to next higher whole hour to have enough money so answer is 22 hours.

Part b: 4×7.5 hours = \$30 toward skates; $\$87.60 - \$30 = \$57.60$; $\$57.60 \div 4.50 = 12.8$ hours;
 $12.8 + 7.5 = 20.3$ hours (may answer 21 if assuming still has to work with whole hours).

Score Point 4

Sample 1

a. $4.0 \overline{) 87.60} = 21.90$ = Ethan will have to work 22 whole hours.

$$\begin{array}{r} 8 \\ 07 \\ \underline{4} \\ 36 \\ 36 \\ \underline{00} \end{array}$$

8. step 1:

$$\begin{array}{r} 7.5 \\ \times 4 \\ \hline 30.00 \end{array}$$

step 2:

$$\begin{array}{r} 87.60 \\ - 30.00 \\ \hline 57.60 \end{array}$$

step 3:

$$\begin{array}{r} 45 \overline{) 57.60} \\ \underline{195} \\ 126 \\ \underline{90} \\ 360 \end{array}$$

$\div 12 = 13$ whole hours

step 4 Ethan will have
work $20\frac{1}{2}$ hours to buy the
roller skates

a. 22 hours

b. $20\frac{1}{2}$ hours

Score Point 4

Sample 2

$$\begin{array}{r}
 4.00 \\
 \times 10 \\
 \hline
 40.00
 \end{array}
 \quad
 \begin{array}{r}
 4.00 \\
 \times 22 \\
 \hline
 80.00 \\
 + 180.0 \\
 \hline
 88.00
 \end{array}
 \quad
 22 \text{ Hours}$$

$$\begin{array}{r}
 4.00 \\
 \times 7\frac{1}{2} \\
 \hline
 2.00 \quad 12 \\
 28.00 \quad 22 \\
 \hline
 30.00 \quad 7 \\
 \quad 15 \\
 \hline
 87.60 - \frac{1}{2} \\
 30.00 \quad \frac{1}{2} \\
 \hline
 57.60
 \end{array}
 \quad
 \begin{array}{r}
 4.50 \\
 \times 10\frac{1}{2} \\
 \hline
 45.00 \quad 15.00 \\
 + 4.50 \\
 \hline
 58.50
 \end{array}
 \quad
 13 \text{ Hours}$$

Score Point 3

Sample 1

a. 2,190 hours
b. 20.3 hours

$\begin{array}{r} 2190 \\ 4 \overline{) 8760} \\ \underline{-8} \\ 07 \\ \underline{-4} \\ 36 \\ \underline{-36} \\ 00 \end{array}$	$\begin{array}{r} 6.55760 \\ 4.5 \overline{) 557.60} \\ \underline{-45} \\ 128 \\ \underline{-90} \\ 380 \\ \underline{-360} \\ 20 \\ \underline{-20} \\ 0 \end{array}$	$\begin{array}{r} 4 \\ \times 7 \\ \hline 28 \\ + 2 \\ \hline 30 \\ + 1 \\ \hline 31 \\ + 7.5 \\ \hline 38.5 \end{array}$
--	--	---

Score Point 3

Sample 2

4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56
60, 64, 68, 72, 76, 80, 84, 88

922 hours
21 hours

Score Point 2

Sample 1

$$\begin{array}{r} \downarrow \\ 84.00 \overline{) 87.60} \\ \underline{80.00} \\ 7.60 \\ \underline{7.60} \\ 0.00 \end{array}$$

rounded up: 22 hours

you divide to find out.
I rounded up because the remainder
is less than an hour.
so I just added
an extra
hour.

$$\begin{array}{r} \downarrow \\ 84.50 \overline{) 87.60} \\ \underline{84.50} \\ 3.10 \\ \underline{3.10} \\ 0.00 \end{array}$$

rounded up:
20 hours

you divide to find out.
I rounded up because the
remainder would add up
to less than an
hour so I put an extra hour.

	answers	hours
a. 22 hours	$\begin{array}{r} 84.00 \overline{) 87.60} \\ \underline{80.00} \\ 7.60 \\ \underline{7.60} \\ 0.00 \end{array}$	
b. 20 hours	$\begin{array}{r} 84.50 \overline{) 87.60} \\ \underline{84.50} \\ 3.10 \\ \underline{3.10} \\ 0.00 \end{array}$	

Score Point 2

Sample 2

$$\textcircled{A} \begin{array}{r} 22 \\ 4 \overline{) 88} \\ \underline{8} \\ 08 \\ \underline{8} \\ 0 \end{array}$$

22 hours

$$\textcircled{B} \begin{array}{r} 12 \\ 3 \overline{) 36} \\ \underline{6} \\ 0 \end{array} \quad \begin{array}{r} 12 \\ 2 \overline{) 24} \\ \underline{4} \\ 0 \end{array} \quad .18 \text{ hours}$$

Score Point 1

Sample 1

22 hours
20 hours
how I got the answer
↓
$$\begin{array}{r} 450 \\ \times 20 \\ \hline 000 \\ 9000 \\ \hline 90.00 \end{array}$$

Score Point 1

Sample 2

A, 21.90 hours

$$\begin{array}{r} 21.90 \\ 4 \overline{) 88.60} \\ \underline{-8} \\ 07 \\ \underline{-4} \\ 36 \\ \underline{-36} \\ 00 \end{array}$$

8

Score Point 0

Sample 1

A. He will have to work 21 hours.

B. He will have to work 17 hours.

Score Point 0

Sample 2

$$\begin{array}{r} \$87.60 \\ - \$4.00 \\ \hline \$83.60 \end{array}$$

$$\begin{array}{r} 7\frac{1}{2} \\ - 4.50 \\ \hline 3.45 \end{array}$$